

Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An apparatus for demineralizing bone, comprising:

a container ~~for~~ having an open top and a closed bottom, the container holding a demineralization solution comprising at least one acid capable of demineralizing bone and at least one piece of bone;

a ~~vessel cap~~ covering said container, said ~~vessel cap~~ containing a first port, and a second port for introducing the bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh ~~having a mesh size sufficient for the demineralization solution to be removed from the container through the filter tube assembly at a rate of from about 0.25 liters per minute to about 4 liters per minute, and wherein the filter tube assembly is configured to exclude pieces of bone larger than a prescribed size;~~

a pump for introducing and removing said demineralization solution from said container;
and

a first tube connecting said first port to said pump;
~~wherein the container, the vessel cap, the filter tube assembly, and the first tube comprises a material that remains stable when contacted with the demineralization solution.~~

Claim 2 (canceled)

Claim 3 (original): The apparatus of claim 1, further comprising a port filter assembly disposed within said second port for maintaining a sterile environment in said apparatus.

Claim 4 (original): The apparatus of claim 3, wherein said port filter assembly provides a gas permeable seal.

Claim 5 (currently amended): The apparatus of claim 3, wherein said port filter assembly comprises a fritted filter disposed within an O-ring, ~~said O-ring surrounded by a retaining ring.~~

Claim 6 (currently amended): The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 300 μm .

Claim 7 (currently amended): The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 225 μm .

Claim 8 (currently amended): The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 125 μm .

Claim 9 (canceled)

Claim 10 (previously presented): The apparatus of claim 1, wherein said material is polytetrafluoroethylene, polyester, glass, or ceramic.

Claim 11 (original): The apparatus of claim 1, further comprising a second tube connecting said second port to a vessel coupled to said pump.

Claims 12 and 13 (canceled)

Claim 14 (previously presented): The apparatus of claim 1, wherein said pump is operated at a rate of about 0.5 to 2.0 liters per min.

Claim 15 (previously presented): The apparatus of claim 1, wherein said pump is operated at a rate of about 1.0 liter per min.

Claims 16-19 (canceled)

Claim 20 (currently amended): An apparatus for demineralizing bone, comprising:

- a container ~~for~~ having an open top and a closed bottom, the container holding a demineralization solution comprising at least one acid capable of demineralizing bone and at least one piece of bone;
- a ~~vessel cap~~ covering said container, said ~~vessel cap~~ containing a first port, and a second port for introducing the bone into said container;
- a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh, ~~having a mesh size sufficient for the demineralization solution to be removed from the container through the filter tube assembly at a rate of from about 0.25 liters per minute to about 4 liters per minute, and wherein the filter tube assembly is configured to exclude pieces of bone larger than 125 μm , and~~
- a pump for introducing and removing said demineralization solution from said container;

and

- a first tube connecting said first port to said pump;

~~wherein the container, the vessel cap, the filter tube assembly, and the first tube comprises a material that remains stable when contacted with the demineralization solution.~~

Claims 21 and 22 (canceled)

Claim 23 (previously presented): The apparatus of claim 1, wherein the at least one piece of bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

Claim 24 (currently amended): The apparatus of claim 1, wherein the mesh size is from about 100 μ to about 300 μm .

Claim 25 (currently amended): The apparatus of claim 1, wherein the mesh size is from about 100 μ to about 225 μm .

Claim 26 (currently amended): The apparatus of claim 1, wherein the mesh size is about 125 μm .

Claim 27 (previously presented): The apparatus of claim 1, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 28 (previously presented): The apparatus of claim 1, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 29 (previously presented): The apparatus of claim 1, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid, tartaric acid, fumaric acid, or succinic acid.

Claim 30 (previously presented): The apparatus of claim 1, wherein the at least one acid is hydrochloric acid.

Claim 31 (currently amended): The apparatus of claim 1, wherein the at least one piece of bone has an average size of from about 120 μm to about 860 μm .

Claim 32 (previously presented): The apparatus of claim 1, wherein the filter mesh comprises polyester monofilament.

Claim 33 (previously presented): The apparatus of claim 1, wherein the container has a volume of from about 2 liters to about 8 liters.

Claim 34 (previously presented): The apparatus of claim 1, wherein the container has a volume of from about 3 liters to about 6 liters.

Claim 35 (previously presented): The apparatus of claim 1, further comprising a thermal wrap about the container.

Claim 36 (previously presented): The apparatus of claim 1, further comprising a mixing paddle disposed within the container.

Claim 37 (previously presented): The apparatus of claim 20, wherein the at least one piece of bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

Claim 38 (previously presented): The apparatus of claim 20, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 39 (previously presented): The apparatus of claim 20, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 40 (previously presented): The apparatus of claim 20, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid, tartaric acid, fumaric acid, or succinic acid.

Claim 41 (previously presented): The apparatus of claim 20, wherein the at least one acid is hydrochloric acid.

Claim 42 (previously presented): The apparatus of claim 20, wherein the filter mesh comprises polyester monofilament.

Claim 43 (previously presented): The apparatus of claim 20, wherein the container has a

volume of from about 2 liters to about 8 liters.

Claim 44 (previously presented): The apparatus of claim 20, wherein the container has a volume of from about 3 liters to about 6 liters.

Claim 45 (previously presented): The apparatus of claim 20, further comprising a thermal wrap about the container.

Claim 46 (previously presented): The apparatus of claim 20, further comprising a mixing paddle disposed within the container.

Claim 47 (new): The apparatus of claim 5, wherein said O-ring is surrounded by a retaining ring.

Claim 48 (new): The apparatus of claim 1, wherein the filter mesh is anchored at the bottom of the filter tube.

Claim 49 (new): The apparatus of claim 1, wherein the filter mesh is anchored at the side of the filter tube.

Claim 50 (new): The apparatus of claim 1, wherein said pump is operated at a rate of about 0.25 to 4.0 liters per min.